

Serial No. 09/942,995
Docket No. H07-137077M/STS

2

AMENDMENTS TO THE CLAIMS:

1. (Previously presented) An invisible information recording method comprising:
extracting a location of at least one blank area of a page image of a sheet of paper,
wherein said location of said at least one blank area is different from a location of an
image, which is visible to the naked eye, of said page image of said sheet of paper; and
recording a digital image on said location of said at least one blank area on said
sheet of paper;
wherein said digital image comprises information in the form of pixels so sized as
to be invisible to a naked eye and at a print density invisible to the naked eye.
2. (Original) The invisible information recording method according to claim 1,
wherein each of the pixels so sized as to be invisible to the naked eye is 75 μ m or less in
diameter.
3. (Original) The invisible information recording method according to claim 2,
wherein each of the pixels so sized as to be invisible to the naked eye corresponds to one
or a plurality of image forming elements used for a device for forming a digital image.
4. (Original) The invisible information recording method according to claim 1,
wherein each of the pixels so sized as to be invisible to the naked eye is printed using a
yellow color developer.

Serial No. 09/942,995

3

Docket No. H07-137077M/STS

5. (Original) The invisible information recording method according to claim 4, wherein the yellow color developer is formed of an ink or toner.
6. (Original) The invisible information recording method according to claim 1, wherein each of the pixels so sized as to be invisible to the naked eye is printed using an ultraviolet rays color developer.
7. (Original) The invisible information recording method according to claim 6, wherein the ultraviolet rays color developer is formed of an ink or toner.
8. (Original) The invisible information recording method according to claim 2, wherein a print density invisible to the naked eye is such that the pixels each so sized as to be invisible to the naked eye are coarsely distributed and an image density is 0.1 or less.
9. (Original) The invisible information recording method according to claim 1, wherein each print density invisible to the naked eye is such that such a block that one or a plurality of image forming elements of a digital image forming apparatus is a representative point in a unit consisting of 16 image forming elements is a recording unit.
10. (Original) The invisible information recording method according to claim 9, wherein adjacent six recording units form one significant block, and information is recorded in the significant block.

Serial No. 09/942,995
Docket No. H07-137077M/STS

4

11. (Previously presented) The invisible information recording method according to claim 10, wherein at least one of the significant blocks comprises a recording unit which always represents "1".

12. (Previously presented) The invisible information recording method according to claim 10, wherein at least one of the significant blocks comprises a recording unit representative of a parity check.

13. (Previously presented) The invisible information recording method according to claim 1, wherein such information formed by coarsely distributing the pixels each so sized as to be invisible to the naked eye so as to include a print density invisible to the naked eye is recorded into a plurality of locations of blank areas on one page of a digital image.

14. (Original) A recording apparatus for recording invisible information on a sheet of paper according to any one of claims 1 to 11.

15. (Previously presented) A printing system including an archiving printer which prints a document upon receipt of a request of printing the document, and at the same time stores the document as document data into an archive, and upon receipt of a request of reprinting the document stored, reprints the document by using the document data stored in the archive, the archiving printer comprising:

a blank area extracting section that extracts a location of at least one blank area in a page image of a document, wherein said location of said at least one blank area is

Serial No. 09/942,995

5

Docket No. H07-137077M/STS

different from a location of an image, which is visible to the naked eye, in said page image of said document; and

a recording section for recording archive management information on storage locations of documents in the archiving printer in to said at least one blank area of said document when the document is printed, in a state that the information is invisible to the human eye or needs a careful watching to see the information;

a reading section for reading out the information being recorded in the printed document in a state that the information is invisible to the human eye or needs a careful watching to see the information, by reproducing the document printed by the archiving printer by means of reproducing means; and

a knowing section for knowing the archive management information of the printed document from the read out information.

16. (Previously presented) The printing system according to claim 15, wherein the recording section embeds the archive management information of the document at the time of printing the document in a state that the information is invisible to the human eye or needs a careful watching to see the information;

the recording section records one and the same information into a plurality of locations of blank areas; and

the reading section includes an optical scanning section for scanning at least a part of the document.

17. (Previously presented) The printing system according to claim 15, wherein the recording section records the archive management information of the document at the

Serial No. 09/942,995
Docket No. H07-137077M/STS

6

time of printing the document in a state that the information is invisible to the human eye or needs a careful watching to see the information;

the recording section records one and the same information into a plurality of locations of blank areas; and

the reading section includes an optical scanning section for scanning at least a part of the document.

18. (Previously presented) The invisible information recording method according to claim 1, wherein said recording the digital image comprises recording the digital image only in said at least one blank area of said page image of said sheet of paper.

19. (Previously presented) The invisible information recording method according to claim 1, wherein said recorded information comprises at least one of a horizontal arrangement and a vertical arrangement in said at least one blank area of said page image of said sheet of paper.

20. (Previously presented) The invisible information recording method according to claim 1, wherein said extracting comprises extracting a plurality of substantially rectangular blank areas from said page image of said sheet of paper.

21. (Previously presented) The invisible information recording method according to claim 1, wherein said extracting comprises extracting a plurality of locations of blank areas from said page image of said sheet of paper.

Serial No. 09/942,995
Docket No. H07-137077M/STS

7

22. (Previously presented) The invisible information recording method according to claim 21, wherein said recording the digital image comprises recording a copy of at least a portion of said information into at least one other location of said plurality of locations of said blank areas.

23. (New) An invisible information recording method comprising:

extracting locations of a plurality of blank areas of a page image of a sheet of paper, wherein each of said locations of said blank areas are different from locations of images, which are visible to the naked eye, of said page image of said sheet of paper; and recording a plurality of image forming elements used for a device for forming a digital image in said locations of said blank areas on said sheet of paper;

wherein said digital image comprises information in the form of pixels so sized as to be invisible to a naked eye and at a print density invisible to the naked eye,

wherein a print density invisible to the naked eye is such that the pixels each so sized as to be invisible to the naked eye are coarsely distributed and an image density is 0.1 or less,

wherein said recorded information comprises at least one of a horizontal arrangement and a vertical arrangement in said blank areas of said page image of said sheet of paper, and

wherein said recording the digital image comprises recording a copy of at least a portion of said information into at least one other location of said plurality of locations of said blank areas.